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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,596	09/22/2000	In Duk Song	2658-0190P	8013

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Birch Stewart Kolasch & Birch LLP
P O Box 747
Falls Church, VA 22040-0747

EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 06/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

09/667,596

Applicant(s)

YOO ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7-10, 13, 16-18, 21- 23 and 27-31 is/are rejected.
- 7) ☒ Claim(s) 3-6, 11, 12, 14, 15, 19, 20, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1, 7-10, 13, 16-18, 21- 23 and 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (US5982467A).

According to claims 1, 2, 7-10, 13, 16-18 and 21, Lee (Figs. 3 and 4a-f) discloses a liquid crystal display (LCD) device comprising:

- a plurality of gate/signal lines 113 formed on a substrate 111;
- a plurality of data/source lines 123 insulating from and intersecting the gate lines, the data lines and intersecting gate lines defining a plurality of cells, at least one cell including:
 - a pixel electrode formed metallic pattern connecting the storage electrode to the drain electrode (claim 22).

- a thin film transistor (TFT) selectively electrically connecting to one of the data lines and one of gate lines defining the cell, including a source electrode connecting to one of the data lines 123 (col. 6, lines 22-23), a gate electrode 117 connected to one of the gate lines;
- a storage capacitor (Fig. 4d) having storage electrode 119;
- a metallic pattern (Fig. 4d) having drain electrode 137 of TFT and storage electrode 119 of the storage capacitor (col. 6, lines 14-15) and being electrically connected to the pixel electrode 139 (col. 6, 43-46); wherein metallic pattern is spaced a predetermined distance from the data line via the gate insulating layer 129;
- a protective layer 135 disposed between the pixel electrode and the metallic pattern,

wherein the pixel electrode is connected to a storage electrode part of metallic pattern via a first contact hole in the protective layer without including contact hole over a drain electrode (claims 7 and 8), and the drain electrode part has a smaller area than if the drain electrode part was electrically connected to the pixel electrode via a contact hole in the protective layer over the drain electrode (claim 9); the pixel electrode 139 has a larger aspect ratio than (expanding further into TFT region) if the drain electrode part was electrically connected to the pixel via a contact in the protective layer over the drain electrode (claim 10)

or

wherein, in the different forming process, the pixel electrode is connected to a drain electrode part of metallic pattern via a contact hole in the protective layer without concluding contact hole over a storage electrode (claims 16 and 17), and the pixel electrode overlaps a gate lines (Fig. 3) less than if the protective layer included a contact hole over a storage electrode part of the metallic pattern.

According to claims 23, 27-31, Lee (Figs. 3 and 4a-f) discloses a method of manufacturing a TFT substrate comprising:

- forming a plurality of gate/signal lines 113 having gate electrode on a transparent/glass substrate 111 (Fig. 4b);
- forming a gate insulating layer 129 on the gate electrode (Fig. 4c);
- forming a semiconductor layer 131/133 on the gate insulating layer (Fig. 4c);
- forming a data/source line 123 having a source electrode 127, and a metallic pattern (Fig. 4d) having drain electrode part 137 of TFT and storage electrode part 119 of the storage capacitor;
- forming a semiconductor 133 (Fig. 4d) over at least a portion of one of the gate electrodes, at least a portion of one of the source electrode, and at least a portion of the drain electrode part (col. 6, lines 13-14);
- forming a protecting film 135 (Fig. 4e) over the entire surface with a first contact hole 175 (exposing the storage electrode part of the metallic pattern

(claim 27), and a second contact hole exposing the drain electrode part of the metallic pattern (claims 29 and 30)

- forming a pixel electrode 139 over the protective film (col. 6, 43-46);

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US5982467A) as applied to claims 1 and 23 above and in view of Kim et al. (US6100953A).

Kim et al (Figs. 9A-10B) disclose the metallic pattern having a drain electrode 9 of TFT and storage electrode 43 (Fig. 10B) wherein the metallic pattern 43 is spaced a predetermined distance from the data line 3 (Fig. 7A) for avoiding parasitic capacitance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a LCD device or method of manufacturing a TFT substrate as Lee disclosed with the metallic pattern formed a storage electrode is spaced a predetermined distance from the data line 3 for avoiding parasitic capacitance.

Allowabl Subject Matter

Claims 3-6, 11, 12, 14, 15, 19, 20, 25 and 26 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

Lee (US6088072A) published July 2000 discloses a metallic pattern (Fig. 4d) having drain electrode 137 of TFT and storage electrode 119 of the storage capacitor (col. 6, lines 14-15) and being electrically connected to the pixel electrode 139; wherein metallic pattern is spaced a predetermined distance from the data line via the gate insulating layer 129. However, Lee does not teach the metallic pattern being overlapped with a portion of a periphery of the pixel electrode.

Kim et al. (US 5995175 A) published November 1999 disclose the storage electrode formed at periphery of the pixel electrode (Figs. 7, 9-11), which also serves as the storage electrode (Fig. 12); However, Kim et al. do not teach the metallic pattern forming drain and storage electrodes being overlapped with a portion of a periphery of the pixel electrode.

Therefore, claims 3-6, 11, 12, 14, 15, 19, 20, 25 and 26 contain the allowable subject matter since there is no prior art teach a LCD device wherein the metallic pattern forming drain and storage electrodes is overlapped with a portion of a periphery of the pixel electrode.

Response to Arguments

Applicant's arguments filed on April 17, 2002 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

Lee (US5982467A) fails to disclose a metallic pattern forming a drain electrode of the thin film transistor and a storage electrode of the storage capacitor as recited in independent claim 1, 21 and 23.

Examiner's responses to Applicants' ONLY arguments are follows:

In regard to claim 1, Lee discloses (Fig. 4D) a metallic pattern forming a drain electrode 137 of the thin film transistor and a storage electrode 119 of the storage capacitor. However, the drain electrodes and storage electrodes are not a single layer and do not share a common layer. Claim 1 fails to disclose the storage electrodes and drain electrodes sharing a "common point".

In regard to claim 21, Lee discloses a storage capacitor having a storage electrode 119, a drain electrode 137 and storage capacitor being connected to pixel electrode 139.

In regard to claim 23, Lee discloses metallic pattern (pattern with non-continuous metallic layer) having drain electrode part 137 and a storage electrode part 119. Again, the drain electrodes and storage electrodes are not a single layer and do not share a common layer. Claim 23 fails to disclose the storage electrodes and drain electrodes sharing a "common point" or "metallic pattern" with "continuous layer."

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

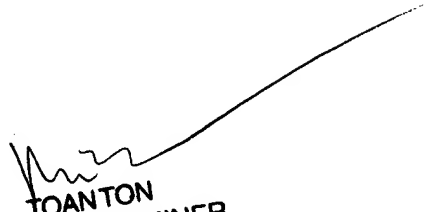
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SIKES L WILLIAM can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8178 for regular communications and (703) 308-5841 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

chn
June 17, 2002



TOANTON
PRIMARY EXAMINER